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13.2200 (also 3002)  
13.2600

S/120/60/000/005/011/051  
E192/E382

AUTHOR: Mishin, G.I.TITLE: An Electronic Millisecond Vernier Chronograph <sup>9</sup>PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No 5,  
pp. 56 - 60

TEXT: The instrument permits measurement of time intervals between two pulses. The error of measurement is  $\pm 0.1 \mu s$  provided the amplitude of the pulses is greater than 3.5 and their rise rate is not less than  $70 V/\mu s$ . The measurement can be done in 7 ms. A block schematic of the instrument is shown in Fig. 1 and its detailed diagram is given in Fig. 2. The device is based on two cathode-ray tubes. One of these is provided with a "slow" time base, where the total time recorded can be of the order of a few milliseconds. The second tube has a much faster time base and is used as the vernier. The circuit of Fig. 2 comprises a standard oscillator operating at 5 kc/s. The output of the oscillator is suitably amplified and is used to produce the "slow" time base which gives  $200 \mu s$  per revolution. The circular time

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An Electronic Millisecond Vernier Chronograph

base on the "fast" or vernier tube is obtained by means of a quartz-stabilised oscillator operating at 100 kc/s so that the duration of 1 revolution is 10  $\mu$ s. The system is also provided with a time marker generator which marks 10  $\mu$ s intervals on the "slow" tube and 0.5  $\mu$ s intervals on the "fast" tube. The chronograph is triggered by pulses of either polarity, provided their amplitude is greater than 3.5 V. The pulses are applied to the start channel. The pulses whose "distance" is to be determined are applied to another input channel. When the start signal is applied to the chronograph one of the univibrators (Fig. 2) is thrown into its unstable state, whose duration is 7 ms. During this time the "slow" tube is opened and the pulses to be measured are applied to two different univibrators. Simultaneously, the signal from the first univibrator is applied to a forming or shaping circuit, where it is converted into a triangular waveform with a linearly decreasing amplitude. This output voltage is used for controlling the amplifiers.

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An Electronic Millisecond Vernier Chronograph

which modulate the circular time bases on the cathode-ray tubes. The measured signal triggers the other two uni-vibrators whose monostable states have durations of 5 and 15  $\mu$ s. Consequently, the spiral of the "slow" time base is extinguished for 5  $\mu$ s while the beam of the "fast" tube is opened for a duration of 15  $\mu$ s. In this way, the blanking of the "slow" tube coincides with the instant of appearance of the ray on the vernier tube. The spiral observed on the "fast" tube is equal in duration to the time interval between the commencement of the measured signal and the first 10  $\mu$ s marker. It is therefore always less than the duration of 1 revolution of the "fast" spiral. This segment of the spiral is provided with 0.5  $\mu$ s markers so that the time can be read with an accuracy of  $\pm 0.1$   $\mu$ s. The oscillograms of the "slow" and vernier displays are illustrated in Fig. 3. The oscillograms obtained by the actual tubes are shown in Figs 4 and 5; Fig. 4 shows a "slow" display, while Fig. 5 gives the oscillogram of the vernier tube. X

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An Electronic Millisecond Vernier Chronograph

There are 5 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR  
(Physics-engineering Institute of the AS USSR)

SUBMITTED: July 24, 1959

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21548

S/057/61/051/004/014/116  
B125/B202

10 4000

AUTHOR: Mishin, G. I.

TITLE: Study of the resistance coefficient of a sphere at supersonic velocities in gases with different ratio of the specific heats

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 4, 1961, 495-498

TEXT: The authors studied the resistance coefficient  $C_x$  in gases with different properties: argon, air, and Freon-12 in order to explain the dependence of the resistance coefficient on the ratio  $\gamma = c_p/c_v$  of the specific heats. The experiments were made in free flight in commercial gases by means of a ballistic device which is exactly described by G. I. Bunayev and G. I. Mishin (Izv. AN SSSR, Mekh. i Mashinost., 1, 100, 1969). The studies in argon comprise the interval of the M-numbers 5 to 6.1 and the interval from  $6.5 \cdot 10^{-5}$  to  $1.3 \cdot 10^{-5}$  of the Re-numbers which increase proportionally to the velocity. The mean error of

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Study of the resistance ...

3/057/01/03/004/014/015  
E12, 2001

measurement was  $\sim 0.75$ . The mean density of the commercial argon was  $1.69 \cdot 10^{-3}$  g/cm. For the concentration  $\alpha$  of the impurity, the ratio of the specific heats and the sound velocity the relations

$$\mu = \frac{\mu_{Ar} \mu_{N_2}}{(1-\alpha) \mu_{N_2} + \alpha \mu_{Ar}}, \quad (1).$$

$$p_0 = p_{0,Ar} (1-\alpha) \frac{\mu}{\mu_{Ar}} + p_{0,N_2} \alpha \frac{\mu}{\mu_{N_2}}, \quad (2).$$

$$c_{p0} = (1-\alpha) \frac{\mu}{\mu_{Ar}} c_{p,Ar} + \alpha \frac{\mu}{\mu_{N_2}} c_{p,N_2}. \quad (3)$$

hold. In this case  $\alpha = m_{N_2} / (m_{Ar} + m_{N_2})$ ,  $\mu$  denotes the molecular weight and  $\gamma \sim 1.60$ . The resistance coefficient in air was measured at atmospheric pressure and room temperature in spheres of a diameter of 0.46 mm for such velocities as correspond to M-numbers from 1.1 to 6. In the region of the Re-numbers from  $5.4 \cdot 10^5$  to  $1.3 \cdot 10^6$ . In these

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Study of the resistance ...

S/057/61/031/04/014/015  
B125/82 K

experiments, pressure  $P$ , temperature  $T$ , and the air moisture were measured. density and velocity of sound were calculated. For Freon-12 ( $\text{CCl}_2\text{F}_2$ ) with the molecular weight 120.92,  $c_{pu} = 9.379 + 0.0272 T$  and  $\gamma = 1.139$  with  $T = 298.16^\circ\text{K}$ ,  $P = 760$  mm Hg. From these relations the temperature dependence of  $\gamma$  can be calculated. With known temperature dependence, the temperature dependence of sound velocity can be determined since in a narrow pressure and temperature range an equation of state of the kind  $P/\mu = \beta k T/\mu$  can be applied for Freons. The experiments on Freon-12 were made at a pressure of 260 mm Hg and at a temperature slightly fluctuating at  $16^\circ\text{C}$ , with M-numbers of from 2.9 to 10.4, and Re-numbers of from  $6 \cdot 10^5$  to  $2 \cdot 10^6$ . The mean deviation of the measured values from the mean curve was 0.4% (Fig. 2). Fig. 3 illustrates the position of the curves of the resistance coefficients of the sphere in comparison with  $\gamma = 1.60$  (1), air  $\gamma = 1.40$  (2), and Freon-12  $\gamma = 1.14$  (3) (full lines) with respect to one another. The coefficient of the total aerodynamic resistance can be represented as the sum  $C_x = C_{xw} + C_{xb} + C_{xa}$ . In this case,  $C_{xw}$  denotes the coefficient of the characteristic impedance,

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01/05/012

Study of the resistance ...

$C_{xd}$  the coefficient of the bottom resistance,  $C_{xs}$  the coefficient of surface friction. In the case of elliptical bodies  $C_x$  can be set  $C_{xw} = C_{xs}$ . In the case of subsonic velocities

X

$\frac{P_c - P_\infty}{P_B - P_\infty} = \cos^2 \alpha$ , (9) holds for the pressure distribution. Here,  $\alpha$  denotes the angle calculated from the critical point,  $P_n$  the standard pressure, and  $P_B$  the brake pressure. Pressure distribution (9) remains constant at least in the interval of the Kn-numbers from 2 to 6.8.

The power of resistance  $F = (\pi R^2/2)(P_B - P_\infty)$  acts on the hemisphere of the projections  $dF_n$  to the x-axis. Furthermore,

$$C_{sa} = \frac{F}{\pi R^2 \frac{1}{2} \rho_\infty M^2} = \left( \frac{P_c}{P_\infty} - 1 \right) \frac{1}{M^2}.$$

(11)

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S/057/61/031, 1, 114, 1  
3120/320.

Study of the resistance ...

holds for  $C_{xw}$  from which in turn

$$C_{xw} = \left[ \frac{(\gamma+1)M^2}{2} \left[ \frac{2\gamma}{\gamma+1} - \frac{\gamma-1}{\gamma+1} \frac{1}{M^2} \right] \right]^{\frac{1}{\gamma-1}} - 1 \left\{ \frac{1}{\gamma M^2} \right\}. \quad (15)$$

follows. According to the experimental data  $C_{xb} \sim 1/\gamma M^2$  approximately holds from which in the following

$$C_x = \frac{\gamma+1}{\gamma} \left[ \frac{2}{\gamma+1} \left( \frac{2\gamma}{\gamma+1} - \frac{\gamma-1}{\gamma+1} \frac{1}{M^2} \right) \right]^{\frac{1}{\gamma-1}}. \quad (17)$$

is obtained. The dashed lines in Fig. 5 show the resistance coefficients calculated for the ratios of specific heats 1.60, 1.49, 1.34 calculated from (17). Eq. (17) satisfactorily describes the dependence of the resistance coefficients of the sphere on  $M$  and  $\gamma$ . The difference between measured and calculated values increases with increasing  $M$ ; it increases

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S/057/01, 11, K4, 14, 11  
B125/2-1

Study of the resistance ...

the strongest with Freon-12. This difference is apparently explained by the excessively rough estimation of the bottom resistance, by the important change of pressure distribution on the sphere with increasing  $M$ , and by the instability of the specific heat of the polyatomic gases. At high supersonic velocities the change of  $C_x$ , as a result of the increase of  $M$ , may be smaller than its possible change resulting from an increase in the specific heat of the gas. The author thanks V. I. August, V. R. Lazovskaya, A. A. Sokolov, V. P. Yermakov, I. N. Gerasimov, and N. P. Mende for their assistance in the experiments. There are 3 figures and 10 references: 3 Soviet-bloc. The two most recent references to English-language publications read as follows: J. T. Hodges, IAS, 24, 10, 755, 1957; R. Oliver, IAS, 23, 7, 177, 1956.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Institute of Physics and Technology, named after A. F. Ioffe of the AS USSR Leningrad)

SUBMITTED: May 24, 1960

Card 6/7

Study of the resistance ...

S/057/61/031/004/014/116  
31.5/2.

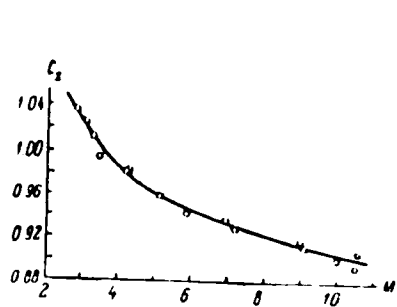


Рис. 2.

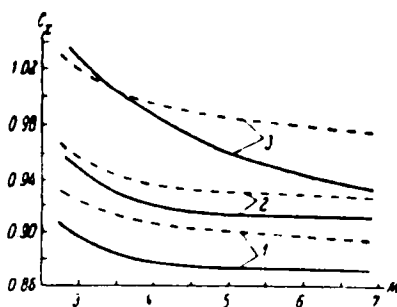


Рис. 3.

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31722  
S/057/61/031/012/009/013  
B104/B112

10 1300

AUTHORS: Mishin, G. I., and Ovsyannikov, V. A.

TITLE: Effect of the gas-dynamic relaxation of CO<sub>2</sub> on the drag factor of a sphere at supersonic speeds

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 12, 1961, 1467-1471

TEXT: Results of a measurement of the drag factor of a sphere in free flight at long and short relaxation times of the deformation vibrations of CO<sub>2</sub> molecules are presented. The required time for the establishment of thermodynamic equilibrium for the deformation vibrations of CO<sub>2</sub> molecules was regulated by proper choice of the CO<sub>2</sub> humidity. The experiments were made with a ballistic device at atmospheric pressure and temperatures around 19.5°C ( $1.6 < M < 4.9$ ,  $2.8 \cdot 10^5 < Re < 0.9 \cdot 10^6$ ; diameter of the sphere, 5 mm). Fig. 1 shows the experimental drag factor  $C_x$  as a function of  $M$ . Before the experiments, the gas was carefully dried with acetone and dry ice. The required degree of humidity was achieved with distilled water. The gas density in the ballistic tube

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B104/B112

was measured with a gas pyrometer. The speed of sound in dry and humid CO<sub>2</sub> was measured with a sound interferometer. The formula

$$C_s = \left[ \frac{2}{\gamma+1} + \frac{\gamma-1}{\gamma(\gamma+1)M_1^2} \right] \cdot \left( 1 + \frac{\gamma-1}{\gamma} \frac{\gamma+1}{2\gamma M_1^2 - (\gamma-1)} \right)^{\frac{1}{\gamma-1}} \quad (15)$$

is derived for the drag factor of a sphere of varying specific heat. Here  $\gamma_1 = C_{p1}/C_{v1}$ ,  $\gamma_2 = C_{p2}/C_{v1}$ ,  $C_{p1}$  and  $C_{p2}$  denote the specific heat in front of and behind the shock wave,  $\bar{\gamma}$  is found from the integral

$$\bar{\gamma}R/(\bar{\gamma}-1) = \int_{T_1}^{T_2} C_p dt / (T_2 - T_1). \quad \text{Eq. (15) describes } C_x(M) \text{ in supersonic}$$

flows at varying specific heat for both excitation and relaxation of vibrations of a free molecule. From a comparison of experimental and theoretical data it results that 1) the effect of relaxation manifests itself only slightly, as the measurements were made at atmospheric pressure and the zone of relaxation was smaller; 2) with increasing M, the effect

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Effect of the gas-dynamic relaxation...

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of relaxation, at constant pressure in the oncoming flow, on the drag factor of a sphere decreases, since the width of the zone in which thermodynamic equilibrium is established, narrows more quickly than the dropout of the shock wave decreases. V. R. Lazovskaya, I. M. Dement'yev, V. P. Yermakov, and N. P. Mende are thanked for participating in the experiments. There are 2 figures and 9 references: 3 Soviet and 6 non-Soviet. The three most recent references to English-language publications read as follows: A. Kantrowitz. J. Chem. Phys., 10, no. 2, 145, 1942; 14, no. 3, 150, 1946; W. Griffith, D. Brickl, V. Blackmann. Phys. Rev., 102, no. 5, 1209, 1955; F. Durham. J. Appl. Mech., 19, no. 1, 57, 1952.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR  
Leningrad (Physicotechnical Institute, imeni A. F. Ioffe  
AS USSR, Leningrad)

SUBMITTED: January 9, 1961

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ACCESSION NR: AP4004497

S/0179/63/000/006/0116/0118

AUTHOR: Mishin, G. I. (Leningrad)

TITLE: Measurement of base pressure in free flight

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 6, 1963, 116-118

TOPIC TAGS: wind tunnel, base pressure problem, base pressure, rocket flight, rocket, ballistics, missile, base pressure measurement, flow characteristics, free flight, cylindrical body ballistics

ABSTRACT: The relationship between the base pressure of a cylindrical body with a semispherical front surface and the Mach number was determined by experiments conducted in a ballistic tunnel at Mach numbers from 1.32 to 2.91 and Reynolds numbers from  $0.9 \cdot 10^6$  to  $2.0 \cdot 10^6$ . The base pressure was obtained by photographically measuring the displacement of a rubber diaphragm mounted in the base of the model to cover a small cavity containing air under atmospheric conditions. Prior to the free-flight tests, experiments were made with

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ACCESSION NR: AP4004497

the stationary model to correlate the diaphragm displacement with pressure. The pressure was gradually reduced from atmospheric, and then increased again to the atmospheric level; the displacement was measured photographically. These tests showed that small-diameter diaphragms do not exhibit fatigue and that these diaphragms at lower pressures assume a spherical shape which makes it possible to calculate the increase in air volume as a function of displacement and to correct for the angle of attack. The correction for the difference in thermodynamic conditions in calibration and free flight was calculated to be about 8%. In the free-flight tests a series of photographs was obtained in two mutually perpendicular planes along the trajectory. The angle of attack was determined from the photographs. Fig. 1 of the Enclosure shows  $\Delta p^0 = p_{\infty} - p^0$  ( $p_{\infty}$  is the atmospheric pressure and  $p^0$  is the base pressure) versus the Mach number at zero angle of attack. The base drag coefficient ( $C_x^0$ ) versus  $M$  is shown in Fig. 2. The circles indicate points calculated from  $\Delta p^0$  by the formula  $C_x^0 = \frac{\Delta p}{\frac{1}{2} \rho_0 u^2}$ , where  $\rho$  is the gas density and  $u$  the velocity. The dashed line was calculated by the formula  $C_x^0 = \frac{1}{\gamma M^2}$  ( $\gamma$  is specific

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ACCESSION NR: AP4004497

heat ratio) assuming that the base pressure is constant, independent of the velocity, and equal to half of the atmospheric pressure. The mean deviation of experimental points from the calculated curves amounted to 3%. Preliminary evaluation showed that this method is sufficiently accurate for studying the effect of the specific heat ratio of the gas on the base drag coefficient. Orig. art. has: 6 figures and 8 formulas.

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ACCESSION NR: AP4004497

ENCLOSURE: 91

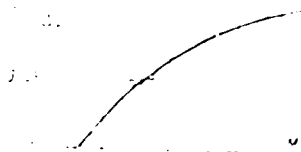


Fig. 1.  $C_p$  versus  $M$  at zero angle of attack

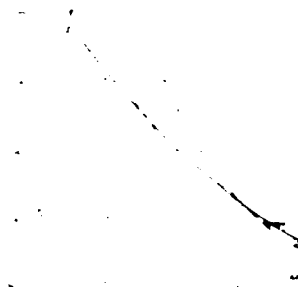


Fig. 2. Base drag coefficient versus  $M$

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L 42143-65 EWT(1)/T/ED(b)-3 Pae-2 LJP(e) GW  
 ACCESSION NR: AP5008208 8/0286/65/000/005/0075/0075

AUTHOR: Mishin, G. I.; Bazarin, I. V.

TITLE: A method for <sup>am</sup>measuring the coordinates of the center of gravity of a body from photographs. Class 42, No. 168897

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 75

TOPIC TAGS: photogrammetry, coordinate grid, gravity center, shadowgraph photography

ABSTRACT: An Author Certificate has been issued for a method for measuring the coordinates of the gravity center of a body from photographs. The coordinate grid on the photographs is preliminarily oriented relative to a fixed base coordinate system. To expedite the compilation of photographs by eliminating difficult calculations, a shadow image of a three-dimensional model of the body investigated is projected onto the plane of the photograph. The preliminarily determined center of gravity of the model is set on the projection axis and made to coincide with the intersection point of the mutually perpendicular rotation axes of the model and of the linear displacements of the photographs required so that the shadow image of the model coincides with the outline of the body on the photograph.

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L 42143-65

ACCESSION NR: AP5008208

The location of the axis of symmetry of the body relative to the coordinate axes and the coordinates of the center of gravity of the body are then determined.

[04]

ASSOCIATION: Fiziko-tekhnicheskiy institut im. Ioffe AN SSSR (Physicotechnical Institute, AN SSSR)

SUBMITTED: 23Apr64

ENCL: 00

SUB CODE: ES

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3239

*cc*  
Card 2/2

MISHIN, Georgiy Mikhaylovich

[Practices of Sverdlovsk farmers for increasing pork production]  
Opyt raboty zhivotnovodov Sverdlovskoi oblasti po uvelicheniiu  
proizvodstva svininy. Moskva, Znanie, 1956. 31 p. (Vsesoiuz-  
noe obshchestvo po rasprostraneniui politicheskikh i nauchnykh  
znanii. Seriya 5, nr. 25) (MIRA 12:1)  
(Sverdlovsk Province--Swine)

L 12608-63 EWT(m)/BDS RM

ACCESSION NR: AP3001610

S/0189/63/000/003/0082/0084

AUTHOR: Shvachkin, Yu. P.; Berestenko, M. K.; Mishin, G. P. 53

TITLE: Synthesis of uracil-4-acetates

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1963, 82-84

TOPIC TAGS: uracil, orotic acid, esterification, oleum

ABSTRACT: The paper describes the synthesis of various esters of uracil-4-acetic acid. Their synthesis takes place in the presence of 15% fuming sulfuric acid, using as issuing materials citric acid, urea, and various alcohols. While the methyl and ethyl esters were thus obtained by earlier workers, the authors synthesized a new series of uracil-4-acetic acid esters of the propyl-, butyl-, amyl-, and octyl-alcohols, and studied their yield and constants. All the esters were colorless crystalline substances with melting points ranging from 174 to 220C. The authors express their thanks to M. A. Prokof'yev for his attention and interest in their work. Orig. art.has: 1 picture, 1 formula, and 1 table.

ASSOCIATION: Moskovskiy universitet, kafedra organicheskoy khimii (Moscow University, Department of Organic Chemistry)

Card 1/1

ACCESSION NR: AP4033114

S/0120/64/000/002/0082/0084

AUTHOR: Mishin, G. P.

TITLE: Automatic control of phantastron delay circuits

SOURCE: Pribery\* i tekhnika eksperimenta, no. 2, 1964, 82-84

TOPIC TAGS: time delay, time delay device, time delay phantastron, controlled delay phantastron

ABSTRACT: The circuit of a generator of linearly increasing voltage proportional to the time difference between two pulses applied to separate inputs is described. This voltage, practically constant for 0.1 sec, is used for controlling the delay of one or more phantastrons. Therefore, the phantastron-determined delay is made proportional to the duration of the master time interval. A block diagram of the device is shown and explained in Fig.1 of the Enclosure. Delays of from 20 microsec to a few millisec can be produced by the device. Orig.art.has: 3 figures.

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ACCESSION NR: AP4033114

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical  
Institute, AN SSSR)

SUBMITTED: 02Mar63

ATD PRESS: 3054

ENCL: 01

SUB CODE: EE

NO REF SOV: 000

OTHER: 000

Card 2/3

ACCESSION NR: AP4033114

ENCLOSURE: 01

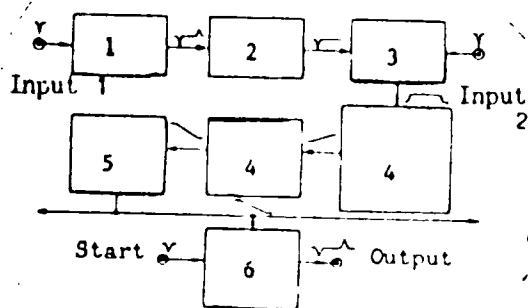


Fig. 1. Block diagram for the automatic control of a phantastron delay circuit

1 - Phantastron; 2 - amplifier; 3 - trigger;  
4 left - amplifier; 4 right - generator of  
linearly dropping voltage; 5 - cathode follow-  
er; 6 - delay phantastron.

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SHVACHKIN, Y.I.P.; BELYKH, M.F.;

Possibility and conditions of the synthesis of  
acetic acid. *Zhur. obshch. khim.* 1964, 40, 1-2, 1-2, 1-2, 1-2.  
MIRA 1964

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

L 10883-66 EWT(m) RM

ACC NR. AP5028258

SOURCE CODE: UR/0189/65/000/004/0089/0091

AUTHOR: Shvachkin, Yu. P.; Berestenko, M. K.; Mishin, G. P.

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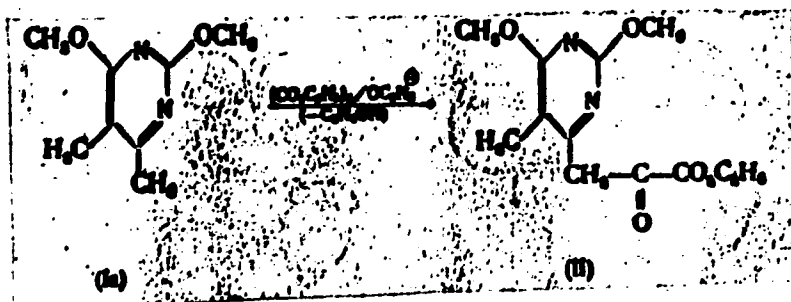
ORG: Department of Organic Chemistry, Moscow State University (Kafedra organicheskoy khimii Moskovskogo universiteta)

TITLE: Synthesis of Beta-(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 4, 1965, 89-91

TOPIC TAGS: amino acid, alanine, pyrimidine

ABSTRACT: The synthetic paths are as follows:

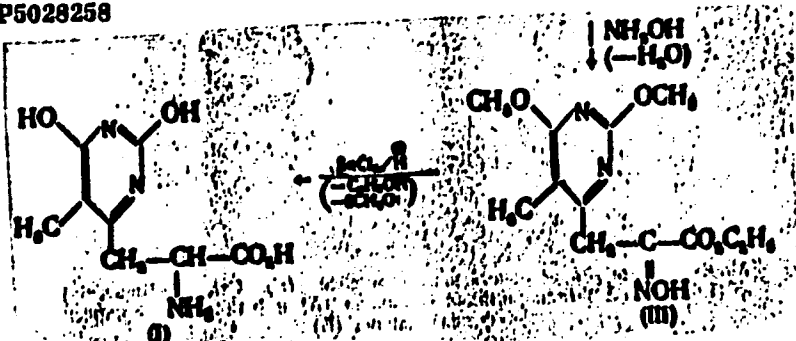


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UDC: 547.91/99

L 10883-66

ACC NR: AP5028258



It was found that  $\beta$ -(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine (I) can be easily prepared from 2,6-dimethoxy-4,5-dimethylpyrimidine (Ia), which in the presence of potassium alcoholate readily enters into a condensation reaction with diethyl oxalate, forming ethyl  $\alpha$ -keto- $\beta$ -(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (II). When the latter reacts with hydroxylamine in an alcohol medium, it converts into ethyl  $\alpha$ -oximino- $\beta$ -(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (III). The latter is easily converted into amino acid (I) by treating ester (III) with stannous chloride in HCl; in a single operation, the reduction of the ketoxime fragment, saponification of the ester group, and hydrolysis of ether bonds are thus accomplished. The new pyrimidyl amino acid (I) is a colorless substance with distinct amphoteric properties. It gives a positive color reaction (brownish-yellow) with ninhydrin. Orig. art. has: 1 figure and 1 table.

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L 10883-66

ACC NR: AP5028258

SUB CODE: 07 / SUBM DATE: 02Nov64

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Card 3/3

S/724/61/000/000/002/020

AUTHORS: Kolobnev, I. F., Shvyreva, L. V., Aristova, N. A., Mishin, G. Ya.

TITLE: Composition, structure, and properties of the alloy AA19 (AL19).

SOURCE: Liteynnye alyuminiyevyye splavy; svoystva, tekhnologiya plavki, lit'ya i termicheskoy obrabotki. Sbornik statey. Ed. by I. N. Fridlyander and M. B. Al'tman. Moscow, Oborongiz, 1961, 16-27.

TEXT: The paper describes the reasonings which led to the development of the AL19 alloy and adduces data to show that the alloy is characterized by an elevated heat resistance, good mechanical properties at room temperature (T), and good weldability. It is noted, however, that it has less desirable casting properties which must be taken into account in the development of casting technologies of various types. The following criteria governed the development of the alloy AL19: (1) It was to be an alloy of the Al-Cu system to obtain the highest achievable strength characteristics at room T and at elevated T; (2) the Cu content should not exceed 5.5% to avoid embrittlement at room T and the development of diffusion plasticity at elevated T; yet the Cu content could not be less than 4.5% to retain maximum strength and ductility at room T; (3) the third component of the alloy was to exhibit: (a) A high interatomic bond, (b) a minimal diffusion coefficient in solid

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Composition, structure, and properties....

S/724/61/000/000/002/020

Al, (c) a sufficiently elevated solubility at room T and at operating T (300-350°C); (d) an ability to form structurally and chemically complex phases which would participate in the formation of a refractory eutectic, would strengthen the grain boundaries of the solid solutions, and also would form a microheterogeneity within the solid-solution grains that would constitute comparatively stable minute solid particles even at high operating T. Mn was chosen to serve as that third component. The effects of Cu and Mn on the mechanical properties of alloys of the Al-Cu-Mn system with varying Cu contents are tabulated in detail, using a reference alloy with Al with 5.0% Cu and 0.9% Mn. The influence of Ti, Cr, and V on the properties of the alloys are analyzed in detail, and the results are tabulated. It is concluded that most favorable properties at elevated operating T are exhibited by an alloy containing 4.5-5.3% Cu, 0.6-1.0% Mn, and 0.25-0.45% Ti. This alloy is designated henceforth as AL19. The effect of additions of Si, Fe, and Mg on the properties of the Al alloy are discussed in detail, and the following optimal values are determined: Fe up to 0.3%, Si up to 0.3%, and Mg up to 0.05%. The optimal heat-treatment procedure for the alloy thus determined is then developed. Two heat-treatment procedures consisting of a quench and a quench-plus-aging, respectively, are developed for the alloy; the first procedure produces an 8-12% elongation and a 30-35 kg/mm<sup>2</sup> tensile strength, the second a 3-6% elongation and a 34-43 kg/mm<sup>2</sup> tensile strength. The latter is recommended for parts operating under higher stresses. A full-page

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Composition, structure, and properties....

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table summarizes the mechanical properties of the AL19 alloy at T ranging from -40 to +350°C for both heat-treatment versions. The stress-rupture values for T from 175 to 350° of AL19 alloys, heat-treated according to both regimes, and a comparison table of the mechanical properties of the AL19 alloy as against those of other widely utilized Soviet cast Al alloys at T ranging from 200 to 300°C are also tabulated. The physical properties of the AL19 alloy, namely, its heat conductivity and its linear expansion coefficient, are tabulated for the two heat-treatment versions of the alloy, for T from 250-300°C. The technological and casting properties of the AL19 and its microstructure in both the freshly and the heat-treated state are described and depicted in microphotographs. The microstructure of the AL19 alloy appears to be the same after either type of heat treatment. There are 4 figures, 9 tables, and 1 German-language reference; Hofmann, W., Falkenhagen, G., Z. f. Metallkunde, v. 43, 1952.

Card 3/3

5/724/61/000/000/001/020

AUTHORS: Kolobnev, I. F., Mishin, G. Ya., Aristova, N. A., Shvyreva, L. V.,  
Mel'nikov, V. A.

TITLE: Smelting and casting procedures for the AL19 alloy.

SOURCE: Liteynnye alyuminiyevyye splavy; svoystva, tekhnologiya plavki, lit'ya  
i termicheskoy obrabotki. Sbornik statey. Ed. by I. N. Fridlyander and  
M. B. Al'tman. Moscow, Oborongiz, 1961, 28-35.

TEXT: The paper describes the equipment and procedures employed in the  
smelting and casting of the AL19 alloy. While all types of standard furnaces can be  
employed, electric resistance furnaces, and especially inductance furnaces, are  
most effective in producing strong castings with a minimal porosity in the shortest  
possible time. The preparation of the preliminary alloy is described in detail, with  
due consideration to the burn-off of metals in various types of charges and in two  
types of furnaces. The charging order, including the principal components and the  
ligatures, is listed, and the refining of the melt by gaseous Cl or dehydrated  
chlorous Mn is described. A maximum smelting T of 720°C is recommended. This  
is followed by a step-by-step explanation of the sequence of the preparation of the  
working alloy. It is noted that, in the preparation of AL19 alloy, liquation and

Card 1/2

Smelting and casting procedures for the AL19 alloy. S/724/61/000/000/003/020

elevated porosity can be prevented only by thorough mixing and refining. In designing the process equipment for the casting of AL19 parts, it is necessary to provide a forced feed, a decentralized input of metal, and the application of input rods. Bottom pouring is established as the basic system of pouring cast AL19 alloy. For tall cylindrical castings it is recommended that a vertical-slot system with two pits be used. For large ingots the following basic parameters of the pouring system are specified: (a) The diameter of the risers is 18-25 mm; it is desirable to set up casting screen underneath the risers, also to provide a sufficient metal-receiver and slag-catcher volume; (b) the cross-section of the collectors must exceed the cross-section of the riser by 2-3 times; the number of slag catchers in the collector is determined by the metal volume of the mold and its size and complexity; (c) the total cross-section of the feeders must exceed the cross-section of the riser by 3 or 4 times, and the width of the feeder must not exceed 6-8 mm. The number and size of the overflow gates must be selected with due consideration of the most massive portions of the casting; the overflow system applicable for Silumin-type alloys is not suitable for the casting of AL19 alloy; the AL19 alloy has twice the viscosity of Silumin, so that especially high overflow gates do not operate satisfactorily; it is advisable to establish low overflow gates having an elliptic cross-section. There are 4 figures, and 3 tables; no references.

Card 2/2

MISHIN, I.A., kandidat tekhnicheskikh nauk; LATKIN, A.N., redaktor;  
TSYRIN, A.A., redaktor; VODOLAGINA, S.D., tekhnicheskiy redaktor

[Metal cutting in agricultural machinery repair] Obrabotka metallov  
resaniem v sel'skokhoziaistvennom remontnom proizvodstve. Moskva,  
Gos. izd-vo selkhoz. lit-ry, 1953. 182 p. [Microfilm] (MLRA 7:10)  
(Metal cutting) (Agricultural machinery--Repairing)

MISHIN, I.A., kandidat tekhnicheskikh nauk

Quality of surfaces of piston pins and connecting parts. Avt. i  
trakt. prom. no.8:14-18 Ag'55. (MLRA 8:11)

1. Leningradskiy sel'skokhozyaystvennyy institut  
(Pistons)

SLOMYANSKAYA, F.B., kandidat tekhnicheskikh nauk; DYATLOVA, V.N.; APANAS'YEV, P.S.; YEGOROV, A.P.; VITKOVSKIY, M.N.; MISHIN, I.A.; MEDOVAR, B.I.; LANGER, N.A.; PAL'CHUK, N.Yu., kandidat tekhnicheskikh nauk; FRID, Ya.L.; LEVIN, I.A., kandidat tekhnicheskikh nauk.

Methods of testing stainless steels for susceptibility to intergranular corrosion. Zav.lab.21 no.11:1314-1340 '55. (MIRA 9:2)

1.Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut khimicheskogo mashinostroyeniya (for Sloyanskaya, Dyatlova).2.Nachal'nik Tsentral'noy zavodskoy laboratorii (for Afanas'yev).3.Nachal'nik laboratorii eksperimental'noye zavoda khimicheskogo mashinostroyeniya.4.Sumskoy mashinostroitel'nyy zavod imeni M.V.Frunze (for Vitkovskiy, Mishin).5.Institut elektresvarki imeni Ye.O.Patona, Akademii nauk SSSR (for Medovar, Langer).6.Moskovskoye vyssheye tekhnicheskoye uchilishche imeni N.E.Baumana (for Pal'chuk).7.Zamestitel' nachal'nika Tsentral'noy zavodskoy laboratorii zavoda "Serp i Molot" (for Frid).

(Steel, Stainless--Corrosion)

MISHIN, I. A. Doc Techn Sci -- (class, "~~The~~ Quality of the  
Surface and ~~MA~~ Wear-Resistance of ~~the Parts of~~ ~~XXXXXXXXXXXXXX~~  
Automobile Tractor Engines" <sup>20.5.5</sup> Len, 1957. 16 p; 20 cm. (Min of  
Agriculture USSR, Len Agricultural Inst), 120 copies  
(KL, 19-57, 87)

- 7 -

MISHIN, I.A., kand.tekhn.nauk

Residual stresses and the rigidity of engine parts. Avt.i trakt.  
prom. no.7:22-24 J1 '57. (MIRA 10:11)

1. Leningradskiy sel'skokhozyaystvennyy institut.  
(Automobiles--Engines) (Strength of materials)

MISHIN, Ivan Alekseyevich; SEMENOV, S.P., kand.tekhn.nauk, retsenzent;  
SHNEZYDER, Yu.G., kand.tekhn.nauk, red.; SHATILOV, V.A., inzh.,  
red.; DUDUSOVA, G.A., red.izd-va; FRUMKIN, P.S., tekhn.red.

[Wear resistance of tractor engine parts] Iznosostoikost' detalei  
avtotraktornykh dvigatelei. Moskva, Gos.nauchno-tekhn.izd-vo  
mashinostroit.lit-ry, 1960. 137 p. (MIRA 13:3)  
(Tractors--Engines)

ASKINAZI, Boris Moiseyevich, kand. tekhn. nauk; LEVITSKIY, I.S., kand. tekhn. nauk, retsenzent; MISHIN, I.A., kand. tekhn. nauk, retsenzent; KOCHERGIN, K.A., kand. tekhn. nauk, red.; KURPINA, G.N., red. izd-va; PETERSON, M.M., tekhn. red.

[Finishing of metal surfaces by heating] Chistovaia obrabotka po-verkhnostei metallov s podogrevom. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1961. 94 p. (MIRA 14:12)  
(Metals—Finishing) (Surfaces (Technology))

MISHIN, I.A., prof.

Technological and economic indices of agricultural machines.

Mekh. i elek. sots. sel'skhoz. 21 no.5:19-21 '63.

(MIRA 17:1)

1. Leningradskiy sel'skokhozyaystvennyy institut.

W. H. W., A. W., W. H. W.

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[illegible]

Monthly List of U.S. Air Accessions, 11 pages of progress, 1941-1942.

MISHIN, I.P.

Susceptibility of Sakhalin reindeer to infection by the nose  
gadfly depending on the development of vibrissa. Zool.zhmr.))  
no.1:162-165 Ja-F '54. (MLRA 7:2)

1. Sakhalinskaya gosudarstvennaya komplekhnaya sel'skokhozyaystven-  
naya opyt'naya stantsiya.  
(Sakhalin--Reindeer--Diseases and pests) (Horseflies)

MISHIN, I.P.

Feeding of the sharp-winged grouse in Sakhalin. Ornithologia  
no.2:197 '59. (MIRA 14:7)  
(Sakhalin--Grouse) (Birds--Food)

MISHIN, I.P.

Biology of tetraonid birds in Sakhalin. Ornitologiya no.3:251-258  
'60. (MIRA 14:6)

(Sakhalin--Grouse)

14 3

A THOR: Mishin, L. N.

TITLE: A Method for Increasing the Stability of Sound Amplifying Systems (Ob odnom metode povysheniya stabil'nosti sistem zvukosileniya.)

PERIODICAL: Akusticheskiy Zhurnal, 1978, Vol.IV, No.1, pp.64-72. (USSR)

ABSTRACT: One of the methods of stabilization of sound amplifying systems (ref.1) based on the principle of phase modulation of a re-generated signal, which is fed at the input by a feedback circuit, is discussed. The energy aspect of processes occurring in self-excitation of a sound amplifying system consisting of a microphone, an amplifier, a loudspeaker and an acoustic space between the microphone and the loudspeaker, is considered. The author uses the method developed by A.A. Kharkevich (ref.2) which makes it possible to establish a very lucid qualitative picture of the processes occurring in this system. It is assumed that the system is working in an open space and that the effect of reflected signals can be neglected. It is also assumed that the system is working in the region of

Card 1/3

4-4-1-3

A Method for Increasing the Stability of Sound Amplifying Systems.

stable self-oscillations. So that in the case of an external sound source the force acting on the diaphragm is determined only by the sound pressure produced in the loudspeaker. A mathematical basis is given for the choice of the optimum value of the amplitude of deviation of phase for certain periodic variations of the phase. A practical case of a phase shifter (Fig.6) which, by change of the a.c. resistance from zero to infinity, produces a change of the phase angle between the input and output voltages varying from 0 to  $180^\circ$ , is discussed. Since the maximum phase shift is equal to  $180^\circ$ , therefore the optimum amplitude of phase deviation may be obtained by a series action of two phase shifters. It was found that the greatest stability was obtained for values of the phase change in the region of  $140^\circ$ . It was found also that the efficiency of phase shifters was strongly dependent on the frequency of phase change. Increase of phase frequency improves the stability of the sound amplifying system considered. The possible increase of phase frequency is limited by distortion. The maximum phase-change frequency which does not produce audible distortion is 4-4.5 sec<sup>-1</sup>. There are 6 figures and

Card 2/3

4-4-1-1 / 3  
A Method for Increasing the Stability of Sound Amplifier  
Systems.

5 Soviet references.

ASSOCIATION: All-Union Research Institute for Medical Instruments  
and Apparatus, Moscow (Vsesoyuznyy nauchno-issle-  
dovatel'skiy institut meditsinskogo instrumentaliya  
i oborudovaniya, Moskva.)

SUBMITTED: February 8, 1957.

1. Amplifiers—Stability—Methods

Card 3/3

MISHIN, L.N.

EGS-2 electrogastrograph. Med.prom 12 no.8:50-53 Ag'58 (MIRA 11:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo instrumentariya i oborudovaniya.

(STOMACH--EXAMINATION)

(PHYSIOLOGICAL APPARATUS)

FEDURKIN, V.V.; NESTERENKO, A.T.; KOVSHAROVA, L.A.; RAZUMOVSKAYA, Ye.I.;  
OSIPOVA, Ye.V.; VASIL'YEVA, J.S.; PEKARSKIY, M.D., otv.red.;  
ZVORONO, B.P., zamestitel' otv.red.; BOLDYREV, B.V., red.; VOLODIN,  
Ye.A., red.; DANIL'CHENKO, Ye.P., red.; ORSKIY, I.N., red.; MISHIN,  
L.N., red.; FREYDIN, G.S., red.; TSEPELEV, Yu.A., red.

[Technological instruction material; aluminum and aluminum alloys  
for medical articles] Rukovodiashchie tekhnicheskie materialy;  
aliuminii i aluminievye splavy dlia meditsinskikh izdelii. Moskva,  
M-vo sdravookhraneniia, 1959. 70 p. (MIRA 13:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo  
instrumentariya i oborudovaniya.

(MEDICAL INSTRUMENTS AND APPARATUS)

(ALUMINUM)

MISHIN, L.N.

Medical low-frequency radioelectronic apparatus. Nov. med. tekhn.  
no. 1:70-79 '60. (MIRA 14:2)  
(FRANCE--ELECTROTHERAPEUTICS--EQUIPMENT AND SUPPLIES)

MAKHIN, L. N. (Moscow)

"The Correlation of ...".

report presented at the ... conference on the ... held at the ... University, 13-28 Jan 1961.

(Primeneniye matematicheskikh metodov v biologii. ...)

(Moscow Agricultural Academy imeni Timiryazeva)

KABATOV, Yu.F.; PEREL'MUTR, A.S.; MISHIN, L.N.; GUREVICH, M.D.

Medical instruments of the German Federal Republic and Holland.

Med. prom. 15 no.3:54-58 Mr '61.

(MIRA 14:5)

(MEDICAL INSTRUMENTS AND APPARATUS)

MISHIN, L.N.

Complex of devices for correlative analysis of physiological processes. Nov. med. tekhn. no.5:3-22 '61. (MIRA 17:6,

1. Vsesoyuznyy nauchno-issled vatel'skiy institut meditsinskikh instrumentov i obratovaniya.

ELSHIN, L.N. (Moskva)

Radioelectronics in medicine. Sov. zdrav. 2 no.3:43-47 1971.  
(MEDICAL ELECTRONICS) (Sov. 1971)

MISHIN, L.N.

Analysis of physiological processes. Nov.med.tekh. no.4.  
3-9'61. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsin-  
skikh instrumentov i oborudovaniya.  
(PHYSIOLOGY)

S/243/63/000/002/001/001

AUTHOR: Mishin, L. N.

TITLE: An apparatus for correlation analysis of physiological processes

PERIODICAL: Meditinskaya promyshlennost SSR, no. 2, 1963, 43-49

TEXT: The irregularity of physiological processes makes a statistical approach expedient. A promising method for discovering characteristics of random processes that are stable in time is correlation analysis. An instrument for recording autocorrelation and cross-correlation functions of physiological processes has been developed in the VNIIMI10 (All-Union Scientific Research Institute of Medical Instruments and Equipment). It (a correlometer) automatically calculated the correlation function

$$R_{1,2}(\tau) = \frac{1}{T} \int_0^T f_1(t)f_2(t-\tau)dt$$

where  $f_1(t)$  and  $f_2(t)$  are functions of time. The correlometer included a time delay line, a multiplying device, an integrator, and an indicator of values of the

Card 1 of 3

S/243/63/000/002/001/001

An apparatus for correlation analysis ...

correlation function  $R(\tau)$ . The source of the signal for the delay line is a two-channel magnetic recorder designed to operate on low and infralow frequencies. The magnetic time delay line was designed on the principle of recording signals from two systems of magnetic heads arranged over the edge (covered with a magnetic coating) of a non-magnetic disk. Its operating frequencies ranged from 1 to 1000 cps. Time shifts in signals were reproduced in the form of different distances along the edge of the disk. If these distances were the same, the delay would be zero, and the output signals would be synchronized. Noise was reduced by using frequency modulation. The disk ran at speeds of 83 and 41.5 rpm or at a linear speed (on the edge) of 1,700 and 850 mm per second. Details and wiring diagrams of the multiplier and the integrator were given. As Soviet industry did not produce magnetic tape recorders for recording physiological processes, usually ranging from 1 to 100 cps, a production one-channel M33-15 (MEZ-15) tape recorder was modified to meet this requirement. A second channel was added, the tape speed was held more nearly constant, and the magnetic heads were replaced. The dynamic range of the instrument was 36 db, nonlinear distortions did not exceed 5%. Tape speeds were 385 and 770 mm/sec. Five figures were given, including a sample correlogram

Card 2 of 3

8/243/63/000/002/001/001

An apparatus for correlation analysis ...

showing the alpha rhythm from an electroencephalogram.

ASSOCIATION: All-Union Scientific Research Institute of Medical Instruments and Equipment

SUBMITTED: July 2, 1962.

Card 3 of 3

MISHIN, L.N.

Correlative analysis of physiological processes. Prim.  
mat. metod. v biol. no.2:94-99 '63. (MIRA 16:11)

✱

L 19562-63

BDS

ACCESSION NR: AP3005573

S/0239/63/049/008/1005/1008

AUTHOR: Mishin, L. N.

TITLE: Instrumentation for correlation analysis of bioelectric processes

SOURCE: Fiziologicheskii zhurnal SSSR, v. 49, no. 8, 1963,  
1005-1008

TOPIC TAGS: correlation analysis, equipment, automatic computation,  
bioprocess electroencephalogram, electromyogram

ABSTRACT: A complex of equipment based on the mathematical expression of the autocorrelation function has been developed to compute automatically the correlation functions for different bioprocesses in the organism. The equipment consists of a two-channel magnetic recorder, magnetic time delay line, multiplier, integrator, and value indicator. A preliminary recording of the function under study is made on magnetic film and is played back during functional analysis to avoid the necessity of using the organism as a signal source and recording the function repeatedly. The two channel recorder can record synchronously two processes on magnetic film. Infralow

Card 1/3

I 19562-63

ACCESSION NR: AP3005573

frequencies can be recorded because frequency modulation is used both in the magnetic recorder and in the delay line. In the delay system there are two magnetic heads. One can be moved along the circumference of a magnetic recording drum during playback so that signals can be read together or it can be shifted to produce a lag or lead in one signal in relation to the other. The multiplier combines amplitude modulation of square pulses with pulse-width modulation. The integrator is a d-c amplifier with a high amplification factor. The integrating circuit consists of a feedback capacitor and variable resistances connected to the circuit grid of the first amplifier tube. Integration time can be changed by changing the resistance values. A time relay which records indicator readings at given intervals facilitates integrator operation. Auto- and cross-correlation process functions whose spectra lie in the 0.1 to 1000 hz range can be recorded. This equipment has been used successfully to compute auto- and cross-correlation of electroencephalogram and electromyogram functions. Orig. art. has: 2 figures.

ASSOCIATION: Vsesoyuzny'y nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya, Moskva (All-Union Scientific Research Institute of Medical Instruments and Equipment)

Card 2/3

L 19562-63

ACCESSION NR: AP3005573

SUBMITTED: 00

DATE ACQ: 27Aug63

ENCL: 00

SUB CODE: AM, SD

NO REF SOV: 000

OTHER: 000

Card 3/3

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"APPROVED FOR RELEASE: 06/14/2000

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APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134620015-8"

MISHIN, I.N.

Some aspects of the use of correlation analysis in experimental  
medicine. Vestn. AN SSSR (1981) 13-14, 1981.

MD-1981

1. Institut Vrachevskoi Biologii i Meditsiny, Akad. Med. Nauk, Moscow.

MISHIN, L.T.; MOISEYENKO, U.I.

Using radiometric methods to solve general geological problems  
under Siberian conditions. Sbor. st. MG101 no.1:18-21 '62.  
(MIRA 16:3)  
(Siberia—Radioactive prospecting)

1. The first part of the document is a list of the names of the persons who were present at the meeting.

2. The second part of the document is a list of the names of the persons who were present at the meeting.

MISHIN, M. [Mishyn, M.], zhurnal'ist (Kiyev)

Climate on order. Nauka i zhyttia 12 no.7:49-50 J1 '62.

(MIR\* 16:1)

(CLIMATOLOGY, MEDICAL)

М.М.А.А.  
MISHIN, M.; YASKEVICH, A.

Use of the radar station "Neptune" for pilot guiding of vessels.  
Mor.flot 17 no.9:26-27 S '57. (MIRA 10:11)

1. Kapitan Ust'-Kamchatskogo porta (for Mishin). 2. Starshiy inzhener-kapitan Upravleniya glavnogo revizora Ministerstva morskogo flota SSSR (for Yaskevich).  
(Radar in navigation) (Ust-Kamchatsk--Pilot guides)

SOV/86-58-8-37/37

AUTHOR: Mishin, M.A., Lt Col

TITLE: Indonesian Aviation Fights for the Country's Freedom  
(Indoneziyskaya aviatsiya v bor'be za svobodu strany)

PERIODICAL: Vestnik vozdushnogo flota, 1958, Nr 8, pp 92-96 (USSR)

ABSTRACT: The author, proceeding from the propaganda standpoint, describes the activities of the Indonesian Air Force against the rebel forces in 1958.

Card 1/1



TSESEVICH, Vladimir Platonovich; MISHIN, M.M., red.

[A walk in the starry sky] Progulka po zvezdnomu nebu.  
Kiev, Naukova dumka, 1965. 79 p. (MIRA 12:12)

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134620015-8

APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134620015-8"

ARONSON, A.Ya., kand. tekhn. nauk; MISHIN, M.M., inzh.; MOSKVIN, L.S., inzh.

Approximate calculation of the frequencies of self-oscillations  
of the runners of Francis-type hydraulic turbines.

Energomashinostroenie 9 no.10:5-7 O '63. (MIRA 16:10)



LEBES HENRI, Vladimir Ivanovich; SHALIMOV, Aleksandr Ivanovich;  
MISHIN, M.P., red.

[Mysteries of minerals] Zagadki zemnykh. Kiev, Naukova  
dumka, 1965. 181 p. (MIRA 18:6)

MISHIN, M.N., inzh.-zemleustroitel'

Make efficient use of each hectare of arable land. Zemledelia  
7 no.8:88-90 Ag '59. (MIRA 12:10)  
(Agriculture)

KOCHEGURA, M.Kh. [Kochegura, M.Kh]; MISHIN, M.V.

At the Kharkov Bearing Plant. Nauka i zhizn' 9 no.12:17-20  
D '59. (MIRA 13:4)

1. Nachal'nik byuro tekhnicheskoy informatsii Khar'kovskogo  
podshipnikovogo zavoda (for Kochegura). 2. Otvetstvennyy sekretar'  
mnogotirazhnoy gazety "Golog rabotnika" Khar'kovskogo podshipnikovogo  
zavoda (for Mishin).  
(Khar'kov--Bearing industry) (Automation)

MILANO, V., 1944-1945. (MIRA 1944)

Original and reproduction of the original. (MIRA 1944)

MISHIN, N.G.

Work conditions of textile workers are improving. Tekstil'nyy.  
19 no.10:80-81 O '59. (MIRA 13:1)

1. Predsedatel' Moskovskogo Oblastnogo Komiteta profsoyuzu  
rabochikh tekstil'noy i legkoy promyshlennosti.  
(Moscow Province--Textile workers)

MISHIN, N.N.; ARNO, A.A., retsenzent; SOKOLOVA, V.Ye., redaktor;  
NEKRASOVA, O.I., tekhnicheskij redaktor

[Design, installation, repair and adjustment of TMM-200-K fiber  
processing machinery] Ustroistvo, montazh, remont i naladka  
mashiny TMM-200-K. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva  
promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 77 p.  
(Hemp) (Jute) (MLRA 7:11)  
(Textile machinery)

MISHIN, N. V.

*Steam Heating & Steam  
Engines 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22*

466F. PULVERIZATION AND COMBUSTION OF WASHERY MIDDINGS IN EXPERIMENTAL SHAFT  
PULVERIZER FURNACE WITH LOUVRE SEPARATOR. Mishin, N. V. (Za Ekon. Topliva  
(Fuel Econ.), July 1952, 5-11). Pure with 50% ash was burned satisfactorily  
in a boiler furnace. Details are given of the fineness of grinding by the impact  
pulverizer, behaviour of air, reduction in moisture content, wear in pulveriser,  
separation of larger particles, and combustion. (L)

Mishin H.V.

✓ 1275. BURNING OF WASTE PRODUCTS OF COAL CONCENTRATION IN BOILER PLANT.  
(IZMIRNIE OTKHOZY UGLEDOGASHCHENIYA V KOTEL'NYKH DETAL'NYKH).  
FU Nitskovich, E.A. and Mishin, H.V. (Moscow: Ugletekhnizdat, 1954, 153pp.)  
Title in Recent Accessions, NITC Museum.

(1)

SSORIN, V.A.; MISHIN, P.A.

Prospects for the development of the wood resin industry in  
Eastern Siberia. Gidroliz. i lesokhim. prom. 12 no. 6:19-20  
'59. (MIRA 13:2)

1. Giprolestrans.  
(Siberia, Eastern--Gums and resins)

MISHIN, P. A.

<sup>12</sup>  
Sulfidation as a new type of chemical heat-treatment to  
improve improvement of the durability of ~~automobile and tool~~  
parts? P. A. Mishin: *Novye Metody Termichesk. Obrabotki*  
*S. Rasplavov, Svyazani Shchelochakii (Gork: Knizdatel-*  
*stvo) Sbornik 1935, 228-38; Referat. Zhur., Met. 1937,*  
*Abstr. No. 8797.*—Data are given on sulfidizing of cast iron,  
carbon steel, and other types of steel and high-speed steel  
tools in baths of various compos., at low (170-180°), me-  
dium (240-272°), and high (280-330°) temps., at the ~~large~~  
automobile plant. Durability of parts and tools after sul-  
fiding increased by 150-375% as compared with unsul-  
fided parts. C. H. Fuchsman

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Distr: 4E2b/4E2c

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MISHIN, P.A.

MC

Sulfiding machine parts and tools. P. A. Mishin and  
 Ya. S. Burava. *Vostochnaia Mashinostroyeniya* 16, No. 1, 10-1  
 (1955).—On immersing C steel for 3 hrs. in a molten bath of  
 K thiocyanate and 10% K alum held at 170-200° or holding  
 it for the same time and at the same temp. in H<sub>2</sub>S, the S  
 content of a layer 0.05 mm. under the surface increased from  
 0.030% S to 0.060% S. Gray iron similarly treated showed  
 0.14-0.18% S in place of the original 0.11% S at the depth  
 of 0.2 mm. under the surface. Heating at 540-70° in H<sub>2</sub>S,  
 in ground FeS or Fe<sub>2</sub>S<sub>3</sub>, or in a molten mixt. of CaCl<sub>2</sub> 38,  
 BaCl<sub>2</sub> 25, NaCl 17, Na<sub>2</sub>SO<sub>4</sub> 3.4, FeS 13.2, and K ferrocya-  
 nide 3.4% produced about the same results, showing 0.080%  
 S in place of original 0.030% at the depth of 0.1 mm. On  
 raising the temp. to 450-500°, the same bath increases S  
 content 0.05 mm. below the surface to 0.25% as compared  
 with the original 0.020% and 0.1 mm. under to 0.12% S.  
 Seizing and wear tests (described) show that both of them  
 are not improved by sulfiding of the specimens but are  
 very greatly helped by sulfiding steel present in any state.  
 Sulfiding was placed in production in the plant where these  
 expts. were made.

J. D. Gil

2 of met

SOV 137-57 6-10-52

Translation from Referativnyi Zhurnal Metallurgiya 1957 Nr 6 p 223 USSR

AUTHOR Mishin P A

TITLE Structural Steels Without Nickel and Molybdenum (Konstruktsionnye stali bez nikel'ya i molibdena)

PERIODICAL V sb. Mashinostroitel' Benarussii, Nr 1 (2) Minsk 1956, pp 108-112

ABSTRACT Ref. RZhMet. 1957 Nr 6 abstract 10951

Card 1 1

127 127 127

127 127 127

Translation from: *Referat* (Leningrad, Metallurgiya, 1977, No. 1, pp. 1-5) BSSE

AUTHORS: Gurev, R. V.; Pleschinskii, S. M.; G. P. A.

TITLE: The Effect of Heat-Temperature Gas-Cathodization on the Properties of the Steel 18KhGTL (18KhNZA) and 20KhGTL (20KhNZA) Alloyed with Vanadium as a Temperature-Forming Material. (Sov. Eng. Transl.)

PERIODICAL: *Sb. nauch. tr. Leningrad. gos. univ.* BSSE, 1977, No. 1, pp. 1-5.

ABSTRACT: An investigation of high-temperature gas-cathodization (HIGC) of the steel 18KhGTL (18KhNZA) and 20KhGTL (20KhNZA) was carried out. The properties of the steel after cathodization were studied as a function of the HIGC conditions. The shaft forgings 18KhGTL and 20KhGTL of the heat-treatment shop at the Minsk automobile plant (LPS) were found that increase in the temperature from 100 to 1000°C during the cycle of cathodization. The rough structure obtained from the HIGC is corrected by subsequent heat treatment, and the mechanical properties of the steel are not impaired, but according to certain conditions, the strength and the defect rate are

CONFIDENTIAL

The Effect of High Temperature on the Properties of Steel

static bending, and the  $R_{\text{p}}$  of the core are even somewhat better than those obtained at 600°. The employment of HFCO is recommended for the above investigated grades of steel.

X-1

1. Steel-Carburization-Equipment

Card 2-2

MISHIN, P.A., inshener.

Experimental use of substitute steels for heavy-duty trucks. Metal-  
loved. i obr. met.no.11:30-33 N '56. (MLRA 10:1)

1. Minskiy avtomobil'nyy savod.  
(Steel, Automobile--Testing)

137-58-2-3460

Translation from: Referativnyi zhurnal. Metallurgiya, 1987, No 2, pp 137-137, USSR.

AUTHOR: Mishin, P. A.

TITLE: The Sulfide Process as a New Form of Chemical Heat Hardening of Surfaces of Friction. (Sulfidirovaniye kak novyy vid khimicheskogo termicheskogo uprochneniya poverkhnostey treniya)

PERIODICAL: Mashinostroitel' Belorussia, No 2 (3), 1987, pp 137-137

ABSTRACT: The results of work to carry out the sulfide process (SP) of steel and iron parts at the Minsk Auto Plant are described. SP was tested in liquid, solid, and gaseous media. The sulfide-bearing compounds and the temperatures of S employed are indicated. Control of the diffusion of the S is by metallography (in accordance with the tinting of the exterior layer), X-ray structure, and chemical (layer) analysis. Wear resistance was determined by testing for wear, scoring, and direction in service. The best results of low-temperature SP were obtained at 170-200°C in a bath containing K sulfo cyanate and 10 percent potassium aluminum sulfate. When held in a bath for 3 hours this yields a layer 0.1-0.2 mm in depth, and the S content of steel is increased by 0.006 percent, and that of iron by

137-58 2-3460

The Sulfide Process as a New Form (cont.)

0.03-0.07 percent. The best results with medium-temperature SP were obtained at 520-570° in a bath containing  $K_4Fe(CN)_6$  (10-25 percent) and KOH or NaOH (5-10 percent) and  $FeS_2$  (3-5 percent). Holding for 30-60 min. yields a darkening depth of 0.2-0.3 mm and a simultaneous cyaniding depth of 0.03-0.07 mm. The gaseous medium does not assure homogeneous wear resistance of the parts, and a solid medium results in a very high saturation by sulfur and increased brittleness. High-temperature SP was performed at 850-860° in a bath containing 72 percent  $CaCl_2$  and 28 percent NaCl with 10 percent powdered Fe-S added. After 3 hours the depth to which a microsection showed tinting was 0.12-0.35 mm and the S content was up to 0.25 percent at a depth of 0.05 mm. The sulfated specimens (SS) have considerably improved score-resistance properties. When tested for wear, the coefficient of friction of the SS proved to be 0.13-0.24 as against 0.44-0.66 for unsulfated specimens. Wear to solid friction was diminished by more than 99 percent, and to lubricated friction by more than 92 percent. The durability of sulfate processed blades is doubled. A blade-cutting tool showed no increase in durability. Service tests showed a significant improvement in resistance to wear and to scoring on the part of sulfated parts, particularly those operating at high velocities and pressures.

Card 2 2

V. A.

1. Steel--Hardening
2. Iron--Hardening
3. Sulfides--Applications

ALEKSANDROV, B. I.; ALSHIN, P. A.; FURSHTEYN, Ya. N.; DROZD, S. N.;  
VASILIN, F. P.

Effect of surface hardening on the strength of the rear semiaxle  
housing of motor vehicles. Sbor. trud. Inst. mash. i avtom. AN SSSR  
no. 2:29-45 '61. (MIRA 1961)  
(Case hardening) (Motor vehicles—Axles—Testing)

ALEKSANDROV, B.I.; MISHIN, P.A.; DROZD, S.N.; VASILETS, F.P.

Effect of the surface heafening on the wear resistance of the case  
of the rear axle shaft. Avt.prom. no.2:35-36 P '61. (MIRA 14:3)

1. Institut mashinovdeniya AN BSSR i Minskij avtozavod.  
(Automobiles—Axles)

ALEXANDROV, B.I.; MISHIN, P.A.; DROZD, S.N.; SAMOYLENKO, V.I.

Effect of heat treatment and of the **dimensional** factor on the  
strength of bolts. Sbor.trud.insp.mash.i avtom.AN BSSR no.2:15-80  
'61. (MIRA 15:3)

(Bolts and nuts--Testing)

SECRET  
B-101300

AUTHOR: Mishin, I. A., Head of Laboratory  
TITLE: Plant laboratories competing for the title of a Communist Laborer of Communist Labor. The Central Plant Laboratory of the Minskii avtomobilnyi zavod as a Laboratory of Communist Labor  
PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 2, 1961, pp. 1-4

TEXT: The author reports on the research work of the Tsentral'naya laboratoriya Minskogo avtomobil'nogo zavoda (Central Laboratory of the Minsk Automobile Plant (MAP)). The major problems dealt with by the Central Laboratory (CL) of MAP are: 1) development and industrial application of new techniques; 2) use of new materials; 3) improvement of technology and test methods of the laboratory. The author describes a new process of tempering white iron with a temperature step at 300-400°C, instead of the first stage of tempering at 600°C. The tempering time can thus be reduced from 6-10 to 4-6 hr. On the strength of results obtained by the Gor'kovskiy avtomobilnyi zavod (Gor'kiy Automobile Plant), modifications are used (Al, E, B), which reduced the time of tempering to 1-2 hr.

Card 10

Plant internal files

S, 012/011  
B101 B22

MAP was the first all-over the world that introduced in operation with the CL, the acceleration was hardening at 1000°C, which reduced the duration of the process by 50% when hardening was performed at 1000°C. The diameter of the shafts was 100 mm. The new MAP used 70% high alloy steels. Now the lifetime of parts was short. Now only 13 high alloy steels containing nickel are used. 10XH (40KhN) steel was replaced by steel of the 10 type whose surface is hardened with high frequency current. The fatigue strength of the shafts will be increased 5 times that of the original. Replacing 10XH with 10XHMA (40KhNMA) steel by 10XPC (40KhN) steel increased the fatigue strength of the half-axles. Replacing 10XPC with 10XPCMA (40KhNMA) steel by 10XPT (40KhPT) steel increased the fatigue strength of the shafts. Now the hardened surface of gears is being treated. 100,000 km, with 10KhPT steel is used. After this repair with 10KhMA steel already after 100 km. In September 1968 the CL started working for the title of a Collective of Communist Labor. They were awarded the title on March 10, 1969 by the Party Committee of the Leningrad Oblast, the plant management for the results of their work. The CL has developed a research plan providing for the replacement of further 13 high alloy steels; 1) extend use of high frequency current and 2) extend

Card 1/1

Plant Laboratory

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with low hardenability; 3, the development of new technical processes, intensification of processes already applied; 4, the use of polymers in the manufacture of automobile parts. The implementation of this plan will reduce prime cost by 519,000 rubles a year. The following shortcomings are mentioned: The CL operates in rooms adjoining the main shop in an area of 1000 m<sup>2</sup>, although a plan worked out by Giproavtoprom 11 years ago provides for a building of an area of 1500 m<sup>2</sup>. The construction of this building has not yet been started. According to this plan, the CL ought to have a staff of 100 people, whereas the present staff comprises 70 people.

ASSOCIATION: Tsentralnyy laboratoriya Minskogo avtomobilnogo zavoda (Central Laboratory of the Minsk Automobile Plant).

Jan 1/86